

In fact, that a contract might be entered into for working a line by locomotive power for the interest of the sum, which would be expended in the establishment of an atmospheric apparatus.

The general results deduced were in accordance with these observations, and it was assumed that the atmospheric system could be most advantageously adopted on short lines, with frequent traffic near large towns, where the absence of noise was important; and that railways on steep inclines in one direction, as at Dalkey, was most favourable to the system.

In the discussion which ensued it was contended that many of the objections urged by Mr. Barlow were not well founded, and that many of the practical difficulties he had advanced had been overcome by the mechanical arrangements now in progress of execution on the more extensive lines which were destined to be worked on the atmospheric system. That both sidings and level crossings were practicable; by a very simple contrivance, a self-acting platform could be so arranged as not only to guarantee the pipe from any injury by the traversing of a cart across the line, but that, by the action of the vacuum in the main, a barrier could be raised on the passing of a train which would effectually prevent the traversing of any vehicle, and thus avoid the possibility of accidents. That instead of the assumed liability to be thrown off the rails, it was shown, that the leading carriage being tied down to the piston, greater security was attained, and that on one occasion the leading carriage on the Dalkey line had started before its time, and had actually traversed the distance at a speed of nearly seventy miles per hour, going round curves 130 to 180 yards radius. That the power stated to have been expended in the conveyance of a given gross load was assumed at too high a ratio, and the fuel also, and that as to the question of cost by haulage, by the adoption of small steam power, worked only for pumping water, to be used only at the time of forming the vacuum for unfrequent or for light trains, a system of propulsion might be established which would be more economical than that by locomotives under the best management.

#### THE ARCHIMEDIAN SCREW APPLIED TO RAILWAYS.

A PATENT for this purpose has been granted to Mr. Isaac Farrell, of Dublin, which, if satisfactorily established, will lead to the most important results. The following description is extracted from a letter addressed by the patentee to Mr. Percell, chairman of the Great Southern and Western Railway:—

"The invention consists simply in a screw, called the screw propeller, laid down continuously in the middle of the track, fixed in the direction of its length and turned under its axis, by steam or other power, communicated to it at proper intervals, say every three miles along the line. This screw may be of any given diameter, say from 18 to 24 inches, formed in lengths of from 12 to 15 feet each, and consists of a shaft of cast or rolled iron-tubing 4 inches in diameter, supporting, by means of wrought-iron arms keyed on the shaft, a rolled-iron spiral, which is bolted to the ends of the arms.

"The power is communicated to the screw by means of spur-wheels, turning a pinion fixed on one end of each line of shafting, of one and a half mile in length; it is situated so as to drive two such lines, that is, one in each direction from it, and the gearing is so contrived as gradually to bring the screw propeller into motion, and also to transfer the power from one line to the other without stopping the train. The motion of the screw-propeller is communicated to the trains by means of a pair of wheels or rollers, so attached to the framework of the leading carriage of the train, as to bear upon the rim or spiral rail that forms the thread of the screw, and thus carries on the train forward; the other acts as a check-wheel, and prevents the train from moving with an unequal motion, or running forward by acquiring acceleration.

"The screw propeller is capable of acting in both directions; and, on the motion being reversed, that which before acted as a check-wheel becomes the propelling wheel, and vice versa. These wheels, which form the only connection between the trains and the pro-

pellor, are perfectly under the control of the conductor, who, by turning the handle of the vertical screw, can press the wheels when he sees it necessary with more power upon the screw propeller, or in a moment disengage them from it; and, having done so, can instantly apply the brake to the bearing wheels, by continuing the movement of the vertical screw and thus stop the train at any point without interfering with the motion of the propeller.

"The advantages proposed to be derived from this invention are—economy in the construction of railways, from the facility it affords for ascending inclined planes of almost any angle, and the consequent reduction in cuttings, embankments, bridges, &c.; also in the use of light rails instead of the heavy rails required for the locomotive system; also, in the use of lighter carriages than those at present in use, and hence less useless load; economy of power for locomotion by the use of fixed engines, or water power in the place of locomotive-engines, and the consequent avoidance of the expense of erection and support of those costly establishments required for the latter. Injury to passengers, by collision or the running of the trains off the rails, being rendered impossible.

"One of the greatest advantages this system possesses over any other in the facility it affords for transmitting a succession of trains at very short intervals. Provision may thus be made for the most extensive traffic without increasing the engine-power: for instance, a train, capable of carrying 50 tons on the present system, could be divided into four trains of five or six carriages each, at ten minute intervals, an arrangement by which 12,500 passengers might be conveyed in a day of twelve hours, and the expense of locomotion not exceed six shillings per day."

#### WORKS IN THE PROVINCES.

At Cromer, in Norfolk, it is in contemplation to erect a new jetty, or breakwater, and sea walls for the purpose of protecting the town from the further encroachments of the sea. It is also proposed to erect other works and defences on the beach and cliff, with convenient promenades. Application has already been made to Parliament for leave to bring in a bill to this effect.

The Secretaries-at-War has decided upon the erection of five experimental military prisons, to which superintendents, selected from the half-pay list, are to be immediately appointed, at a salary, in the majority of cases, of 200*l.* per annum.

Lord Middleton purposes expending 15,000*l.* upon improving the town in the county Cork, from which he derives his title.

At Canterbury the labours of the workmen employed in the restoration of the ancient church of St. Martin are nearly concluded. The new paving is completed, the whole of which is of foreign oak, and in character with the antiquity of the building itself, which is said to be the oldest ecclesiastical structure in this kingdom. Little of the ancient part however remains.

In Cumberland it has at length been determined that the memorial to the late Earl of Lonsdale shall consist of a statue in marble. Whether it is to be an in-door or out-door statue, and the site, are left for further consideration, to be determined upon by a committee specially appointed for those purposes.

At Camarthen a preliminary meeting was held last week, having for its object the erection of a monument to General Nott, the hero of Ghuznee and Candahar. A committee was formed, and a subscription opened, to which Lord Ellenborough has contributed 100*l.*

At Rugby a monument has just been erected to the memory of the Rev. Dr. Arnold. It was executed by Mr. John Thomas, of Carnarvon; the figure is recumbent, under a rich Gothic canopy, and has given so much satisfaction to the committee, that they have rewarded the artist with 100*l.* beyond the sum agreed upon.

In York Minster, a monument is about to be erected to the memory of the late Dr. Beckwith. It is to consist of a high tomb of the decorated period surrounded by pinnacled buttresses, between each of which are to be ogee arched panels with crests and finials; in each panel will be inscribed the name of one of the charities which the doctor aided by his benevolence. The cover of the tomb will be of black marble, having on a splay the inscrip-

tion in incised brass. On the tomb will repose a whole-length effigy of Dr. Beckwith, the size of life, in white marble. The head will be a faithful likeness, the sculptor, to whom the work has been committed, J. B. Leyland, having had the advantage of carving and modelling the bust previous to the doctor's death. The tomb is to be placed in the east end of the south aisle.

In the cemetery at Nottingham, a monument has just been erected to the memory of Robert Millhouse, the poet. It is about 6 feet high. Over the surbase is a tablet, containing the following inscription from the pen of Mr. Spencer Hall, who was the intimate friend of poor Millhouse. It is creditable both to the head and heart of the writer.

IN MEMORY OF  
ROBERT MILLHOUSE,  
AUTHOR OF THE DUSTINESS OF WAR,  
SHERWOOD FOREST, THE SONG OF THE CATHERY,  
BLOSSOMS, AND OTHER POEMS,  
WHO DIED AT NOTTINGHAM,  
APRIL 13TH, 1835,  
AGED 34 YEARS.

"When Trent shall flow no more, and blossoms  
    fall  
On Sherwood plains, to scent the springtide gale;  
When the lark's lay shall lack its thrilling charm,  
And song forget the patriot's soul to warm;  
When love o'er human hearts hath lost all sway,  
His fame may pass—but not till then—away:  
For nature taught, and freedom fired his rhyme,  
And virtue dedicated it to time."

Emblematical of the subject, over the inscription, is a lyre entwined within a wreath; the whole is surmounted with an elegant cross fleury. The work was committed to the charge of Mr. Widdison, sculptor, of Edwinstowe.

Thorwaldsen's celebrated statue of Lord Byron, which was originally intended for Westminster Abbey, is about to be placed in the library of Trinity College, Cambridge. The poet was a member of this distinguished body, having graduated M.A. (hon.) 1803.

At Pembroke Dock, a new church is about to be erected. As Government own a good deal of house property in the town, they have considerably granted 500*l.* towards the building.

In the Potteries, a district church for Fossebrook and Blythe Marsh is being built. The Queen Dowager has recently presented a donation of 20*l.* towards the building fund.

#### JURISDICTION OF OFFICIAL REFEREES—PARTY-WALLS.

SIR,—Before addressing myself to the task of explaining the painful position in which I am placed with the official referees, I will state the case that has induced the discussion. The trustees of a chapel hold a vestry-room on the ground-floor, in the rear of, and over which, are rooms belonging to the owner of the adjoining property, consequently coming under the denomination of "intermixed buildings." This chapel was rebuilt in a most substantial manner in 1817, having as 18-inch wall against the adjoining premises, now perfectly sound, and in thorough repair. The owner of the adjoining property being desirous of pulling down his erections for the purpose of putting up other buildings, applied to the referees, who issued their authority to serve notices both by the "building owner" and the district surveyor, appointing a day for meeting on the premises.

Two distinct notices were served—one as to the party-arch between the intermixed rooms, the other as to the above-mentioned wall; in respect of which wall a tenable objection might be taken, that it is an external wall, inasmuch as it was built entirely on our ground, and not being within the operation of the former Act of Parliament, the common law of the land would preserve our right to it. But as, with the exception of the preservation of ancient lights, no objection would have been raised to the "adjoining owner" using the wall, we will assume, for the purpose of raising the argument, that it was a "sound party wall" (presently, also, contending that it is a "sufficient one"). I attended the meeting on the part of the trustees of the chapel, protesting against the survey; the building-owner was attended by his surveyor, who, I presume from the statements I made, declined to take any part in the matter; and whatever the opinion of the district surveyor may have been from